

C/015/0032 #3261
Incoming

0009



P.O. Box 1077, Price, Utah 84501 794 North "C" Canyon Rd, East Carbon, Utah 84520
Telephone (435) 888-4000 Fax (435) 888-4002

Daron Haddock
Permit Supervisor
Utah Division of Oil, Gas and Mining
P.O. Box 145801
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84114-5801

April 6, 2009

Re: Crandall Canyon Mines, C/015/032
Change to Drainage Control Plan, Water Aeration Treatment Area

Dear Mr. Haddock:

Enclosed are six copies of changes to Mining & Reclamation Plan for the Crandall Canyon Mines. These changes reflect the proposal to utilize the old loadout area as a treatment area for the mine discharge water. This is needed in order to treat the iron through aeration to comply with the UPDES discharge permit. As you are aware, we are now in a violation situation with DWQ due to the high iron. This aeration treatment system is being proposed to abate the violation.

This treatment area will also treat the mine-induced seepage from the ledge below the portals, which is now reporting to the sediment pond. Based upon on-site discussions with Division personnel it was determined that we should implement the treatment of the mine water and seepage water on an operational basis, and then, after seeing how well this works, address the final reclamation plan as required by Division Order DO08A (Task 3092). As you will recall we submitted a response to the Division Order, but the submittal was rejected, primarily on the grounds that additional operational data from the seepage area, and the water treatment requirements, would need to be factored into a final reclamation plan regarding how to handle the long-term mine discharge water. We will submit a revised reclamation plan to address this situation in the near future, as per our recent discussion.

Daron Haddock

March 6, 2009

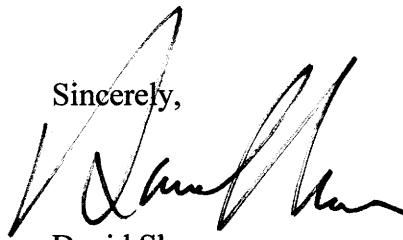
page 2

We also to plan to extend the existing French drain near the old portals to collect some of the mine seepage water which is currently reporting to the sed pond.

Because we need to abate the DWQ violation as soon as possible I would like to request an expedited review of this change.

If you have any questions or comments regarding this submittal please contact me at 435 888-4017.

Sincerely,

A handwritten signature in black ink, appearing to read 'David Shaver', written over a large, stylized checkmark or 'V' shape.

David Shaver
Resident Agent

GENWAL MINE

015/032

CRANDALL CANYON #1 MINE and the SOUTH CRANDALL MINE

CHANGE TO THE DRAINAGE CONTROL PLAN
FOR THE

MINE DISCHARGE WATER
AERATION TREATMENT FACILITY

SUBMITTED: APRIL 3, 2009

5.26.13 Surface Equipment

Underground supply equipment will be used on the surface as needed. The following is a list of equipment used exclusively on the surface:

Fork Lift
Pick-up Trucks
Dozer

Snow Plow
Diesel Tractors

Front End Loader
Bobcat tractor

5.26.14 Culinary Water System

The culinary water used at the mine is purchased from a vendor who is supplied from a state approved water system, or taken from the deep well (MW-1) located at the mine portals. This deep well has been installed in accordance with state health regulations for culinary use. The culinary water is placed in containers designed for this purpose. Drinking water at the mine is provided as bottled water.

The water used underground is placed in the mine sumps located underground. The location of the sumps will change as mining progresses across the reserve and will not remain in any one area permanently.

5.26.15 Sewage System

The bathhouse, located underground, and a new proposed bathhouse for the culvert expansion project is designed and constructed in accordance with the State Health Department's rules and regulations. The sewage will be contained in a concrete holding tank and pumped by a licensed contractor and disposed of at a State approved sewage treatment plant. The sanitary facilities underground will comply with all MSHA regulations. The sewage facility can be found in Appendix 5-12.

5.26.16 Sedimentation Control Structures and Water Treatment Facilities

The existing sedimentation pond was reconstructed during the 1986 and 1989 construction seasons and enlarged during the culvert expansion project in accordance with R645-301-526.300, as detailed in the Runoff and Sediment Control Plan located in Chapter 7.

Underground sumps will be built in order to effectively treat underground water before discharging into Crandall Creek, refer to Plate 5-4 for the sump locations. All discharge into the creek will meet effluent limitations of the UPDES permit and monitored in accordance with that permit, (Appendix 5-14). ~~The sediment pond and the underground sumps are the only water treatment facilities proposed at the mine site.~~

As a result of the Crandall Canyon Mine disaster of August 6, 2007, the mine has been de-activated and the portals have been sealed. Mine water inflow has built up to the extent that water is now discharging from the portals and is discharged through a 12" pipe into Crandall Creek under UPDES permit UT0024368. The mine is presently discharging approximately 400-500 gallons per minute, with the flow fluctuating with barometric pressure and seasons. In early 2009 the iron concentrations in the water began to exceed UPDES limits. Because there is no way to treat the water underground the company is proposing to treat the water with an aeration system located on the surface in the "old loadout" area, immediately below the portal bench. The existing water discharge pipeline would be re-routed so that the mine water would discharge at the upper end of the area. The water would then run across a series of low riffles to spread the flow out over as much area as possible and provide maximum contact with oxygen in the air. The treated water would then be collected at the lower end of the area, routed through a culvert under the road, and would then be discharged into Crandall Creek at the currently approved UPDES outfall monitoring point.

It should be noted that the "old loadout area" is located primarily within a large notch that was blasted out of the solid Star Point Sandstone when the facility was originally constructed in the early 1980's. The area will first be cleaned of all coal materials to reveal the under-lying granular borrow base. The area will then be leveled in a north-south direction (transverse to the water flow) and smooth-graded in the west-east direction (along the direction of flow). The area will then be surfaced with a water-proof treatment (i.e., concrete, asphalt, impervious liner, etc.) to make certain that the water flow across the treatment pad does not saturate the underlying fill material. Because the floor of the treatment pad will be at a lower elevation than the adjacent roadway, the aeration waterflow will be contained at all times within a lined treatment basin. This will ensure that the adjacent fill under the roadway stays dry and retains its full stability.

The existing mine-water discharge pipeline, which comes down the bank from the portals, will be equipped with a tee and valve assembly. From this tee a new distribution line will be installed to carry the discharge water to the upper (western) end of the treatment area. This distribution pipeline will be suspended either from off the existing concrete wall (left over from the old loadout facility) or suspended from rock anchors affixed to the solid ledgerrock. The distribution line will be valved at the tee so that water can be turned into the treatment area, or can be directed back into the existing discharge line. This ability to bypass the treatment facility will be advantageous at time when the facility needs to be taken off-line for construction, maintenance or adjustments.

A suitably constructed barricade would be constructed around the treatment facility along the outer edge of the treatment basin (between the treatment basin and the road) which will prevent any disturbed area drainage from entering the treatment facility area, and similarly will prevent any of the mine discharge water from spreading over the adjacent disturbed area and reporting to the sediment pond. See Plate 5-3 for the location of the facility. This treatment area is also designated as ASCA 12 in the Sedimentation and Drainage Control Plan found in Appendix 7-4 and Plate 7-5. See Figure 7-14 for a schematic representation of the aeration facility, as well and the mine-water discharge piping and French drain collection system at the portals.

The discharge water will flow down-gradient over the treatment basin from the upper (western) end down to the lower (eastern) end. Along the way it will pass over and around a series of low-lying baffle structures placed at right angles to the flow pattern. As currently envisioned, these structures could be precast concrete parking curbs (wheel stops) measuring approximately 4" high x 6" wide x 8' long. The purpose of these curb structures is to slow down the flow velocity and spread it out over as much surface area as possible. This will maximize the amount of exposure of the water to the air to enhance the aeration precipitation of the iron. The curbs can be individually adjusted to maximize the spread the waterflow

Between the curbs will be a 2"-3" layer of sorted gravel which will help trap the iron precipitate particles to prevent them from continuing on downstream to the UPDES outfall. The gravel material will also provide a better surface area for the iron sulfides to adhere. This gravel may consist of a crushed limestone to help chemically in the iron removal process. It will also be possible to add a chemical flocculant and/or coagulant to the water at the upstream end to aid in the iron removal process. This gravel/crushed rock layer will be removed and replaced as necessary as it becomes overloaded with iron precipitates.

At the lower end of the treatment basin, the water will be collected into a buried pipeline. This pipeline will cross underneath the road and will connect into the existing discharge line. In this manner the treated water end up reporting to the Crandall Canyon drainage (by way of the main bypass culvert) at the existing approved UPDES outfall point.

There is every reason to believe that water will permanently discharge from the Crandall Mine portals. The iron level of the mine water historically was very low, and began rising only after the water began to build up and impound within the mine workings following the mine collapse of 2007. There is a possibility that the iron is the result of dissolved pyrites in the coal, and that after the pyrites have been leached out, the iron level will drop back down to its pre-existing compliance levels. Until then, the treatment will have to continue, but if the situation stabilizes the aeration treatment can later be discontinued. Therefore, it is not known at this time if the iron treatment facility will be a temporary structure or if it will be needed on a long-term (i.e., permanent) basis. This question will be addressed in more detail in the Reclamation Plan, Appendix 5-22.

The area of the treatment pad is about 13,400 sq. ft. Assuming an average thickness of the pavement (concrete or asphalt) of 4", this would require require approximately 165 yds. of material to be disposed of during final reclamation. Using the currently approved Division calculations for bonding costs, the increased reclamation cost due to the treatment pad would be as follows;

a) pavement removal	$\$4.11/\text{SY} \times 1499 \text{ SY} =$	\$6120
b) loading cost	$\$1.43/\text{CY} \times 165 \text{ CY} =$	236
c) transportation cost	$\$3.49/\text{CY} \times 165 \text{ CY} =$	576
d) disposal cost	$\$7.75/\text{CY} \times 165 \text{ CY} =$	<u>1279</u>
Subtotal demolition		\$8211
Indirect costs (x 26.8%)		<u>\$2200</u>
Total cost		\$10,411
Escalated cost (5 yrs @ 1.6%/yr)		\$11,272

The current posted reclamation bond is \$2,061,000. Therefore, the additional bonding cost of \$11,272 represents less than 1% of the present bond.

5.26.21 Utility Installation and Protection

All coal mining and reclamation operations will be conducted in a manner which minimizes damage, destruction, or disruption of services provided by oil, gas, and water wells; oil, gas, and coal slurry pipelines, railroads; public utilities; etc. which pass over, under, or through the permit area, unless otherwise approved by the owner of those facilities and the Division.

5.26.22 Operation of Support Facilities

Support facilities will be operated in accordance with a permit issued for the mine to which it is incident or from which its operation results.

5.26.3 Water Pollution Control

See "Waste Disposal Plans" under the Mining Operation section of this chapter.

5.26.4 Air Pollution Control

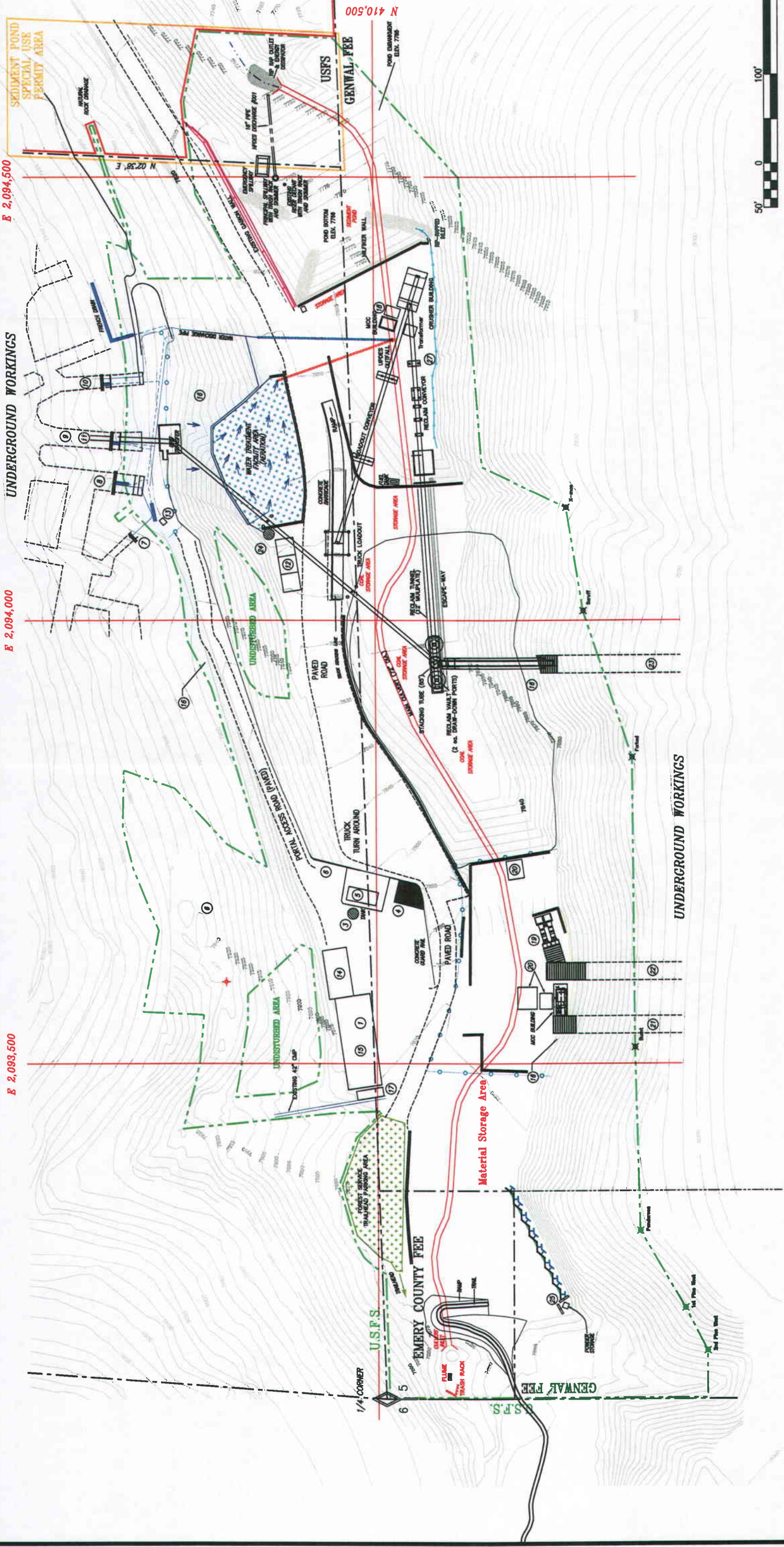
Coal mining and reclamation activities will be conducted in accordance with R645-301-420 and the Air Quality Approval Order issued by the Utah Division of Air Quality (Appendix 4-7).

5.27 Transportation Facilities

The coal from the mine will be transported to the rail loadout or final destination by truck. The trucks are typical 45 ton tandem trailer coal haulers used in the Utah coal fields. GENWAL uses a loading site on the Utah Railway located at Mohrland, Utah, a loading facility on the Southern Pacific Railway in Wellington, Utah, and other independently owned loadouts within the Carbon/Emery county area.

The Forest Development Road from Huntington Creek to the truck turn around area was constructed under the definition of a class one road and will be maintained as a primary road, in compliance with the road use permit issued by the U. S. Forest Service, Manti-La Sal National Forest. The forest access road will remain as part of the post mining land use in accordance with the Forest Service Permit (Appendix 1-2). The Forest Service Access Road, upgraded under the definition of a class two road, is maintained as a primary road. The road connects the main pad area, the truck turn around area, and the Forest Service Parking/Turnaround to the Huntington Canyon Road (State Route 31). The road is designed, maintained and will be restored in accordance with the Forest Service road use permit.

The road from the lower pad area to the upper pad area was built under the definition of a class two road and is maintained as a primary road. It is designed (as shown on Plate 5-10),



- FACILITY LEGEND:**
- 1. Shop
 - 2. Ventilation Fan
 - 3. Rockdust Silo
 - 4. Concrete Dumpster Pad
 - 5. Power Center
 - 6. Power Pole
 - 7. Offices & Bathhouse (u'grd)
 - 8. Intake Portal
 - 9. Belt Portal
 - 10. Fan Portal
 - 11. Mine Belt
 - 12. Oil Storage
 - 13. Visual Disconnect

- 14. New Warehouse and Office Building
- 15. 4500 Gallon Cullinary Water Tank
- 16. Shotcrete
- 17. Parts Shed
- 18. Portable Shed
- 19. Ventilation Fan
- 20. Material Storage Sheds
- 21. Intake Portal
- 22. Return Portal
- 23. Belt Portal
- 24. Mag Tank
- 25. Powder Storage
- 26. Cap Storage
- 27. Concrete Ditch

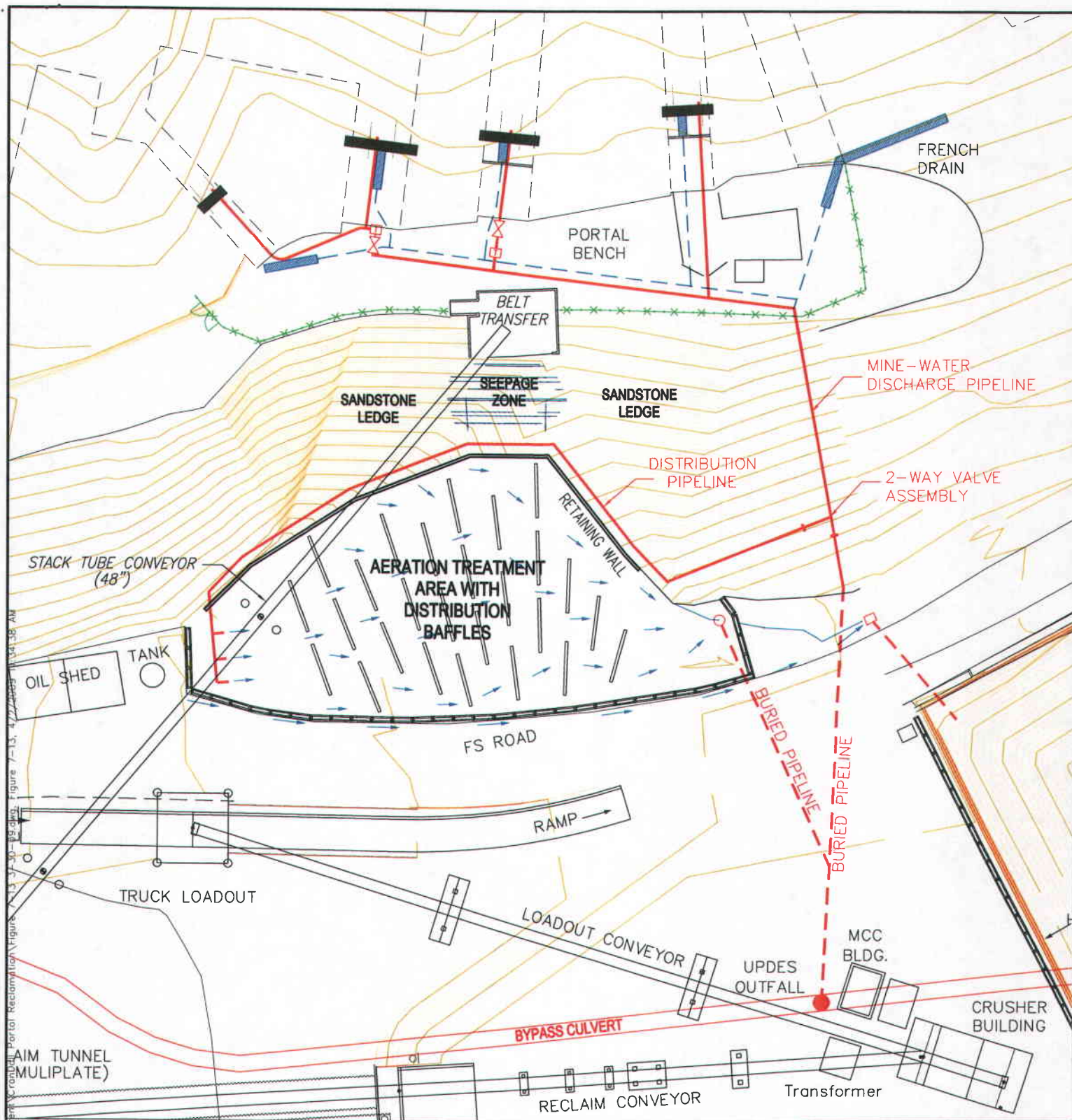
- LEGEND:**
- SEDIMENT POND (SPECIAL USE PERMIT AREA)
 - EXTENT OF DISTURBANCE
 - 10' CONTOUR
 - JERSEY BARRIERS
 - RE-ESTABLISHED USTS ROAD (DOUBLE-LANE)
 - SAFETY BARRIERS
 - FENCING



GENWAL™
RESOURCES, INC.
P.O. Box 1077, 794 North "C" Canyon Rd, Price Utah
Telephone: (435) 888-4000

CRANDALL CANYON MINE SURFACE FACILITIES			
REV: 16	ACUP: 5-3	BY: PJJ	PLATE #: 5-3
DATE: 2-13-09			
SCALE: AS SHOWN			





I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

MINE-WATER DISCHARGE TREATMENT FACILITY

Crandall Canyon Mines

Crandall Canyon

P.O. BOX 910

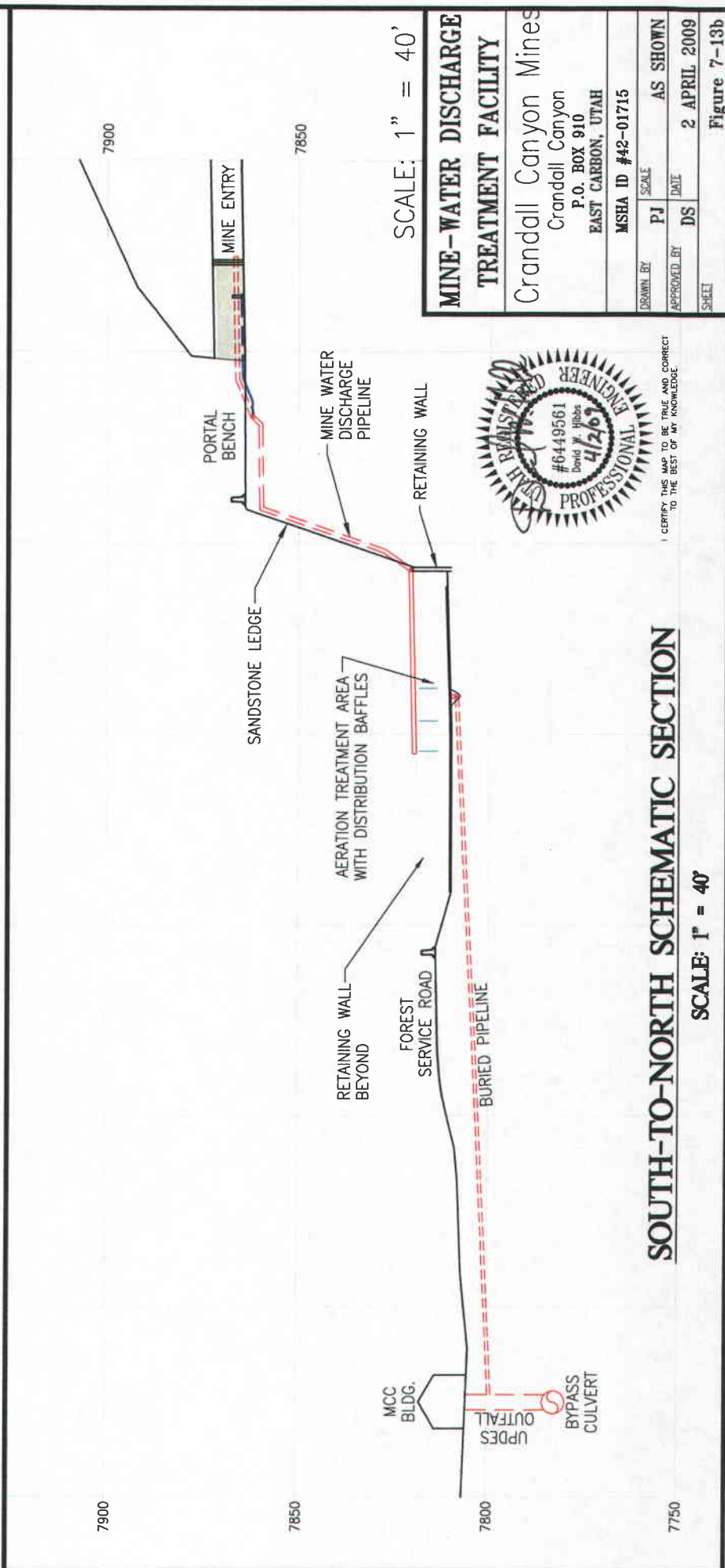
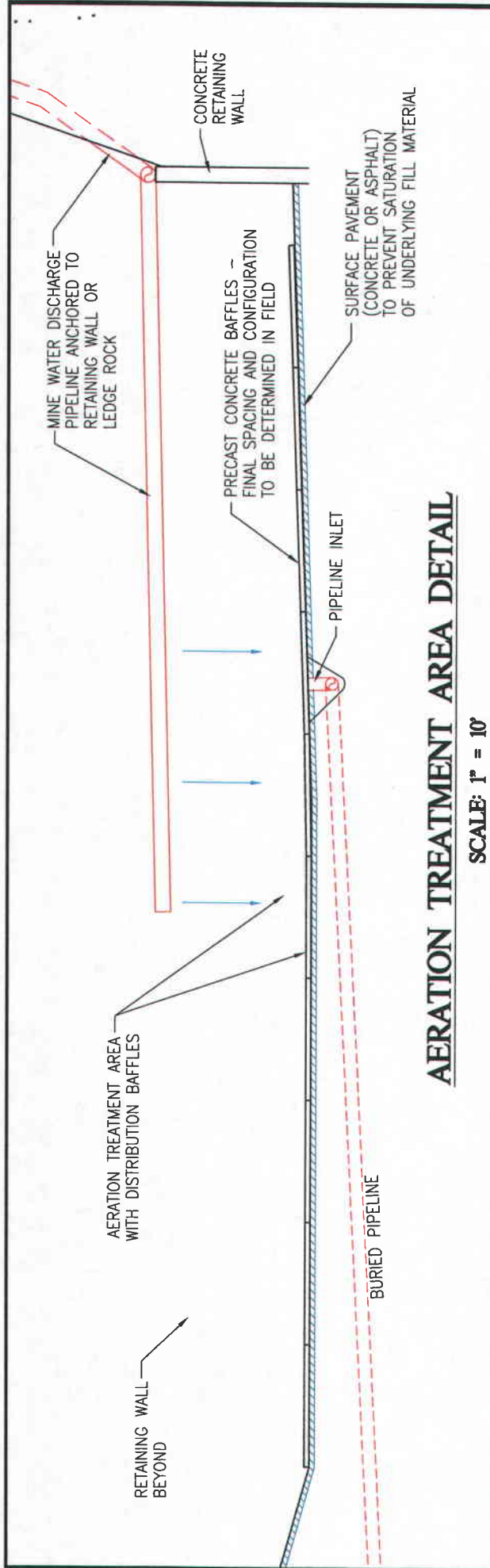
EAST CARBON, UTAH

MSHA ID #42-01715

DRAWN BY PJ SCALE 1" = 50'

APPROVED BY DS DATE 2 APRIL 2009

FIGURE FIGURE 7-13a



I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

SCALE: 1" = 40'

**MINE-WATER DISCHARGE
TREATMENT FACILITY**

Crandall Canyon Mines

Crandall Canyon
P.O. BOX 910
EAST CARBON, UTAH

MSHA ID #42-01715

DRAWN BY	PJ	SCALE	AS SHOWN
APPROVED BY	DS	DATE	2 APRIL 2009
SHEET			

Figure 7-13b

TYPICAL WATER POOLING
BEHIND BAFFLES

TYPICAL PRECAST CONCRETE BAFFLES --
FINAL SPACING AND CONFIGURATION
TO BE DETERMINED IN THE FIELD

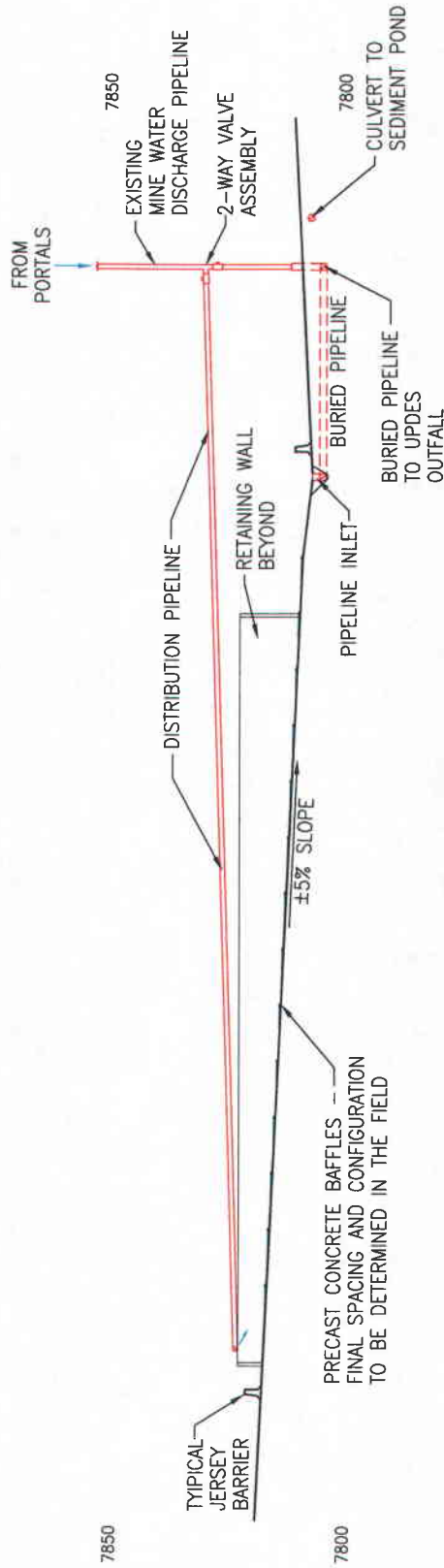
WATER FLOW

±5% SLOPE

SURFACE PAVEMENT
(CONCRETE OR ASPHALT)
TO PREVENT SATURATION
OF UNDERLYING FILL MATERIAL

AERATION TREATMENT AREA DETAIL

SCALE: 1" = 5'



WEST-TO-EAST AERATION TREATMENT AREA SECTION

SCALE: 1" = 40'

MINE-WATER DISCHARGE

TREATMENT FACILITY

Crandall Canyon Mines

Crandall Canyon
P.O. BOX 910
EAST CARBON, UTAH

MSHA ID #42-01715

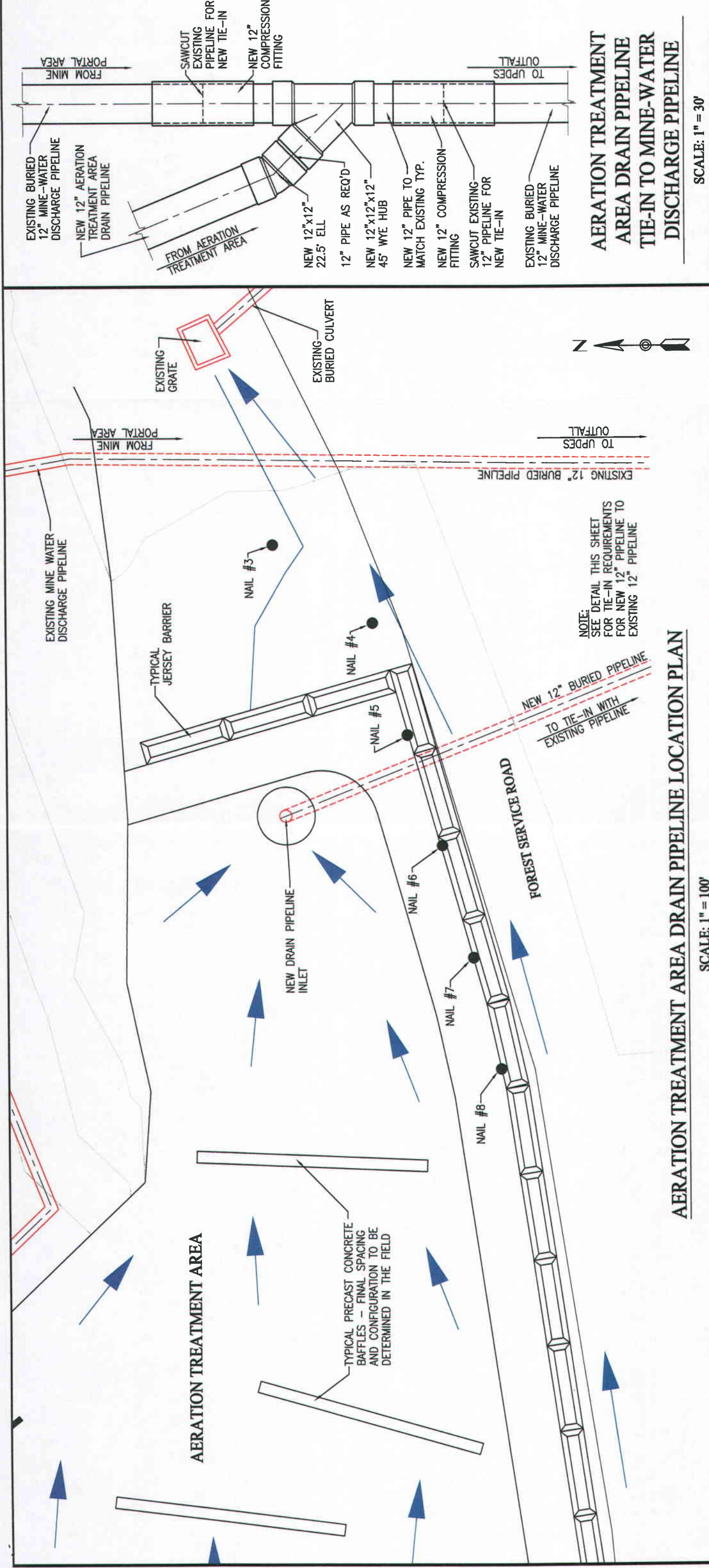
DRAWN BY PJ SCALE AS SHOWN

APPROVED BY DS DATE 2 APRIL 2009

SHEET Figure 7-13c

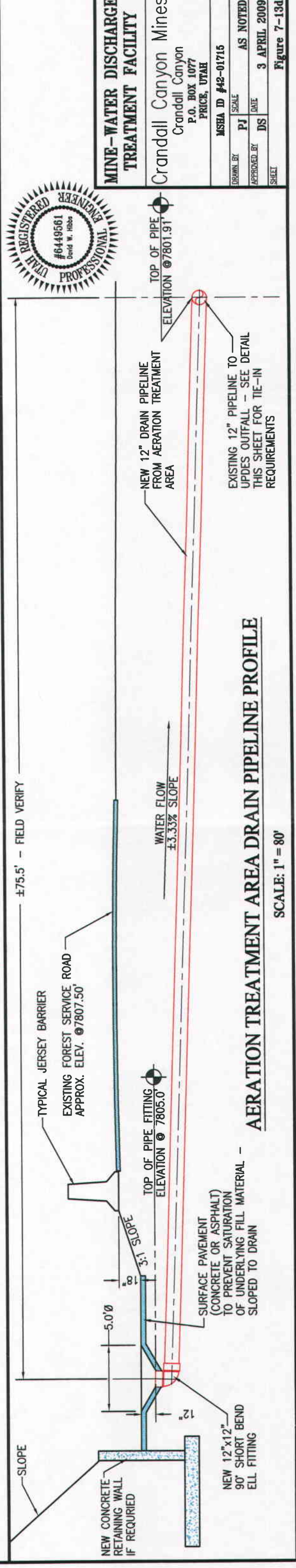


I CERTIFY THIS MAP TO BE TRUE AND CORRECT
TO THE BEST OF MY KNOWLEDGE



AERATION TREATMENT AREA DRAIN PIPELINE LOCATION PLAN

SCALE: 1" = 100'



AERATION TREATMENT AREA DRAIN PIPELINE PROFILE

SCALE: 1" = 80'



MINE-WATER DISCHARGE TREATMENT FACILITY	
Crandall Canyon Mines	
Crandall Canyon	
P.O. BOX 1077	
PRICE, UTAH	
MSHA ID #42-01715	
DRAWN BY PJ	SCALE
APPROVED BY DS	DATE
	3 APRIL 2009
SHEET	